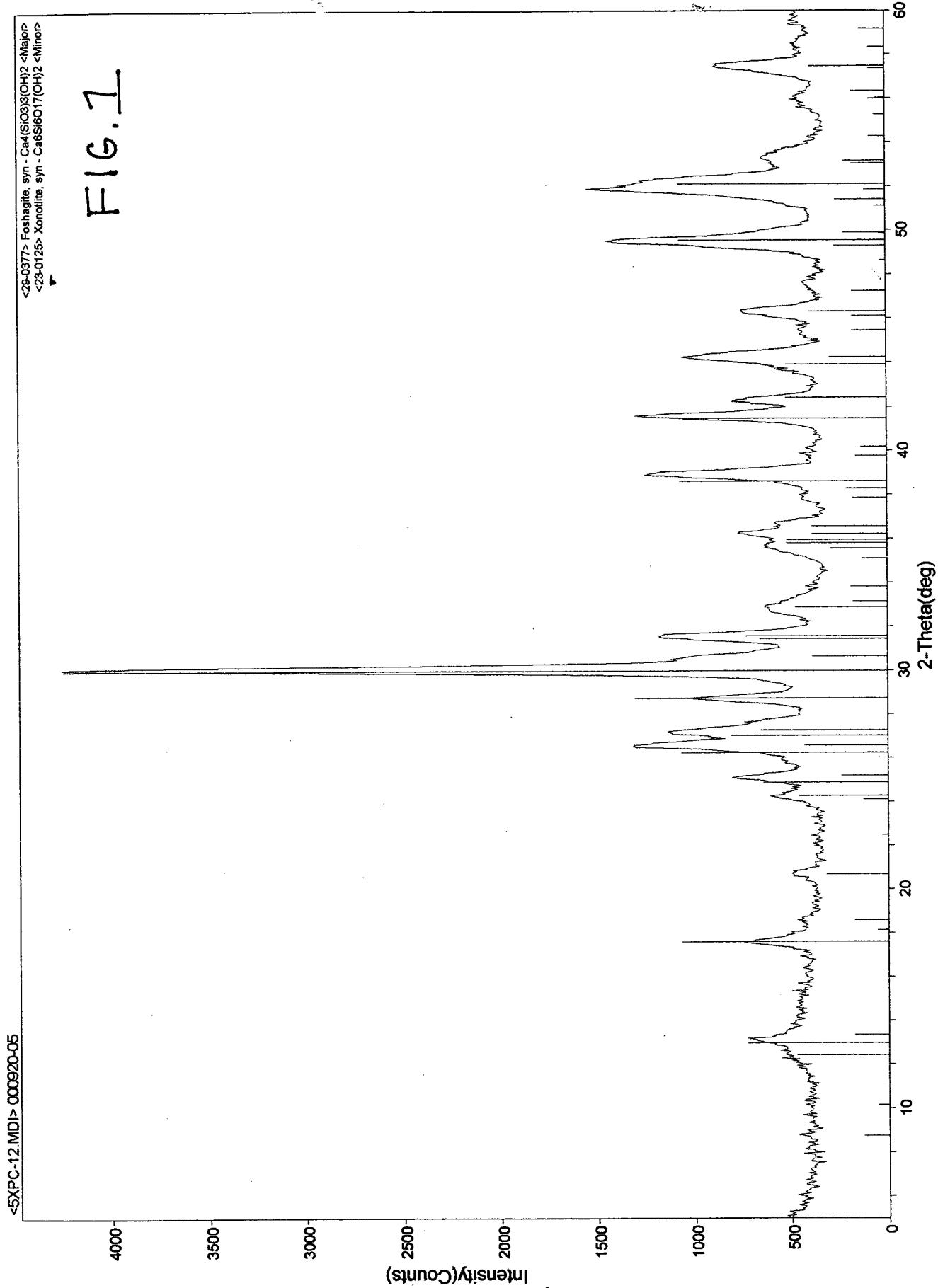


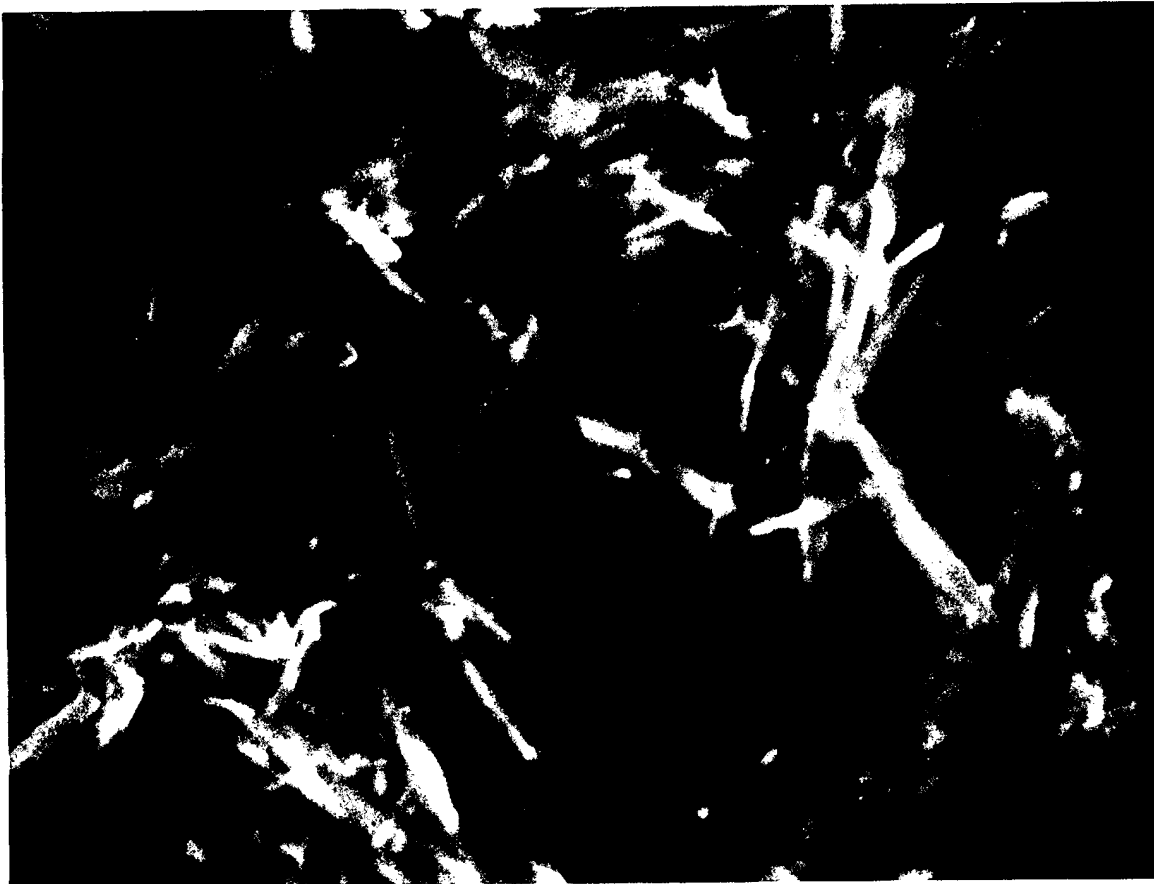
009980-2.tif

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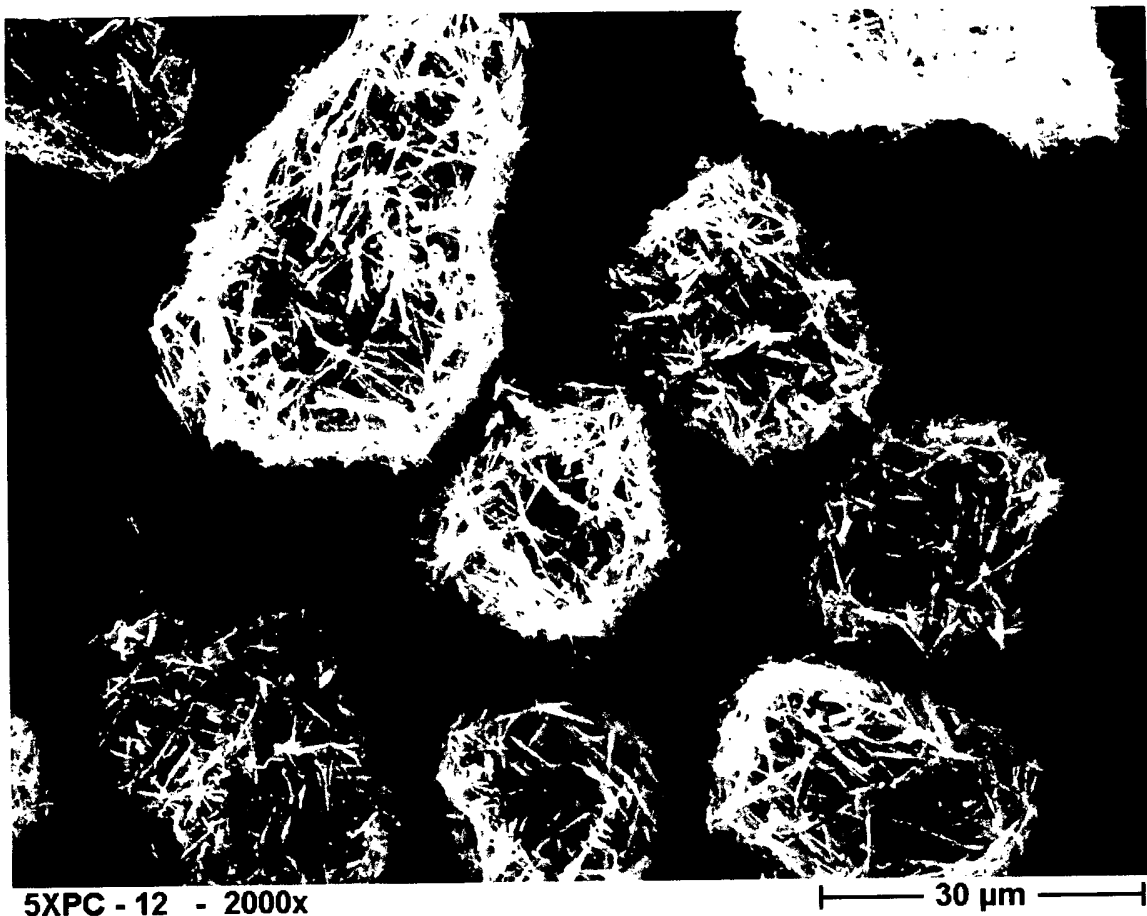
Docket No.: GR1-2790-U Sheet 1 of 34
Serial No.: 09/649,413 Filing Date: 08/26/2000
Applicant: MATHUR, Vijay K.
Title: MULTI-PHASE CALCIUM SILICATE HYDRATES,
METHODS FOR THEIR PREPARATION, et al
CALL: R. Reams Goodloe, Jr.
Phone: (253)859-9128/ Reg.#32,466/ Cust#20793

FIG. 2



5XPC - 12 10,000x

FIG. 3



Docket No.: GRI-2790-U Sheet 2 of 34
Serial No.: 09/649,413 Filing Date: 08/26/2000
Applicant: MATHUR, Vijay K.
Title: MULTI-PHASE CALCIUM SILICATE HYDRATES,
METHODS FOR THEIR PREPARATION, et al
CALL: R. Reams Goodloe, Jr.
Phone: (253) 859-9128 / Reg. #32,466 / Cust#20793

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0050230 - 244960

<XPC-27.MD> 000920-04

<28-0329> Riverside-9A - Ca₅Si₆O₁₆(OH)₂ <Major>
<23-0125> Xonotlite, syn - Ca₆Si₆O₁₇(OH)₂ <Major>

FIG. 4

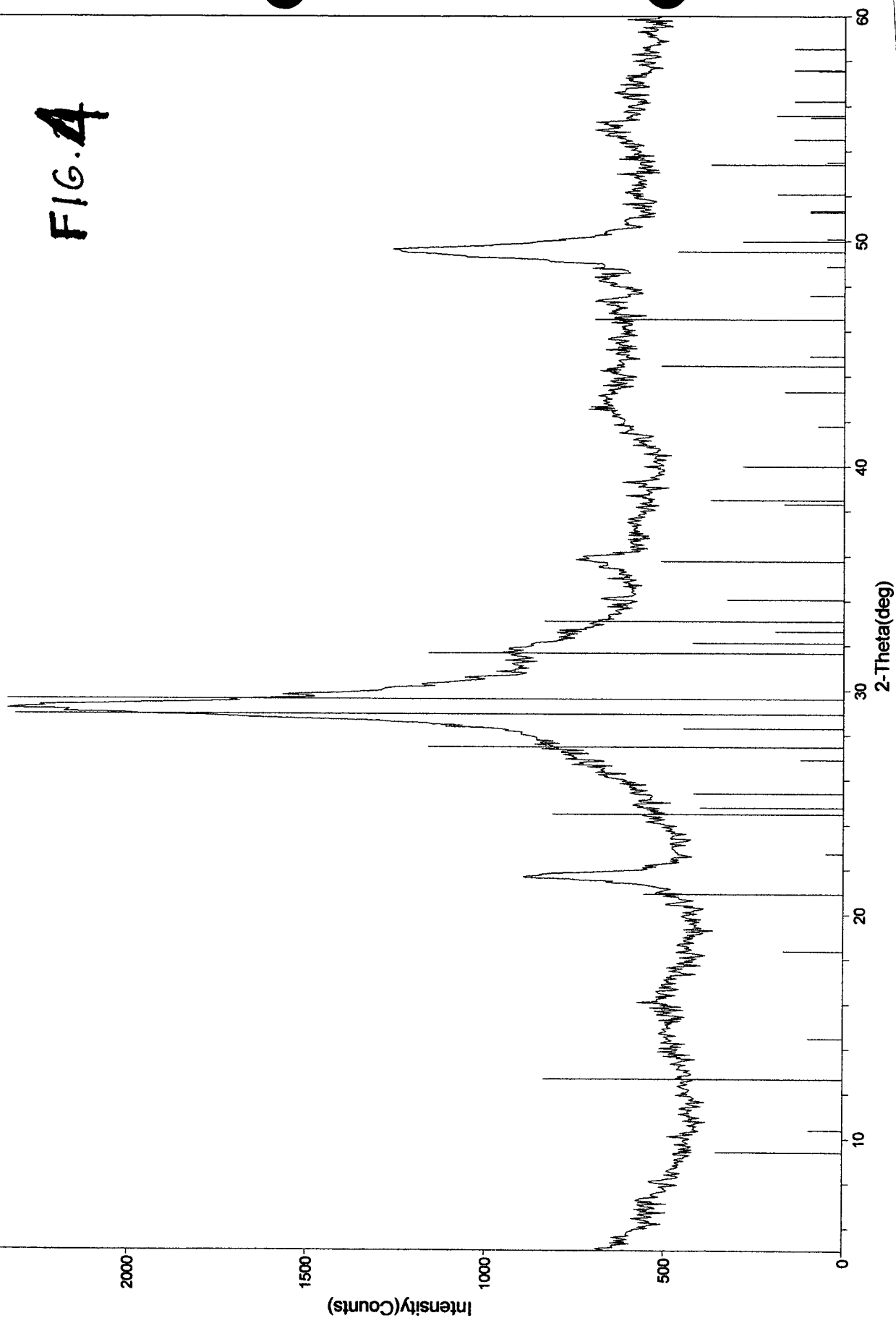
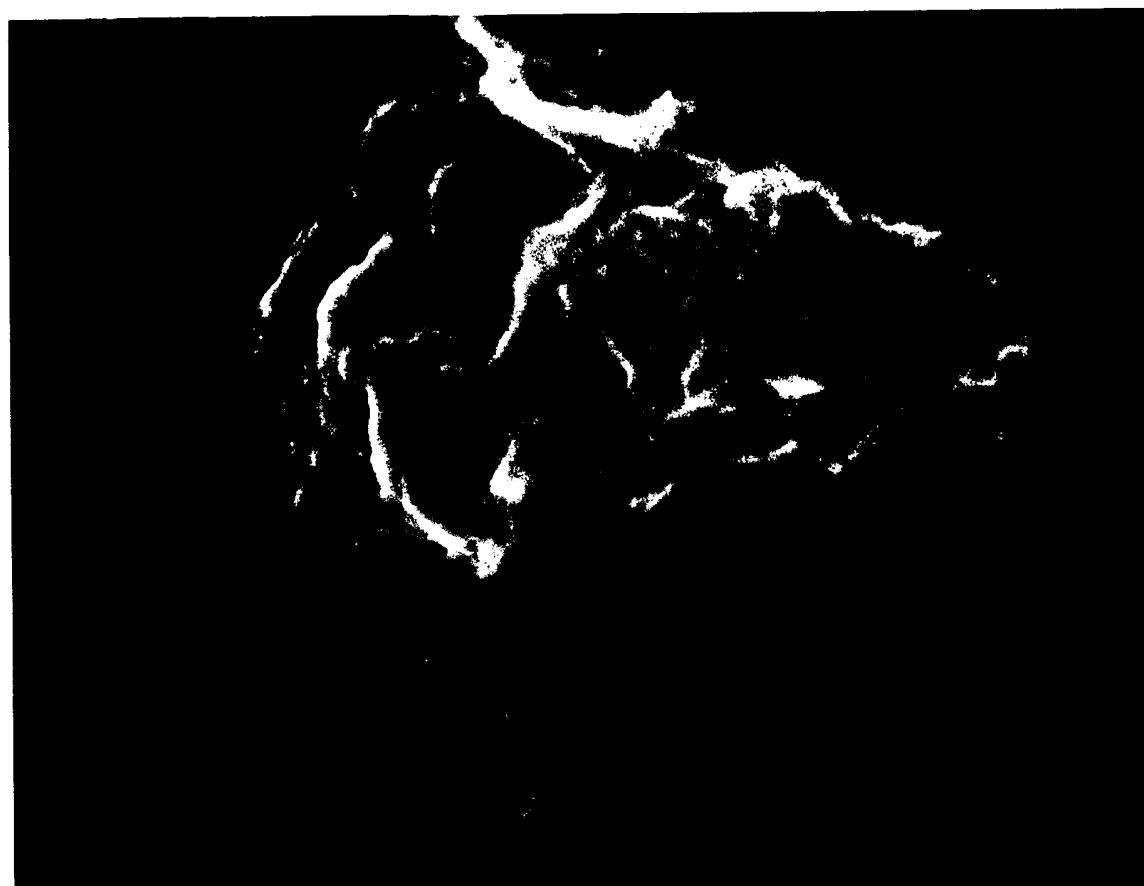


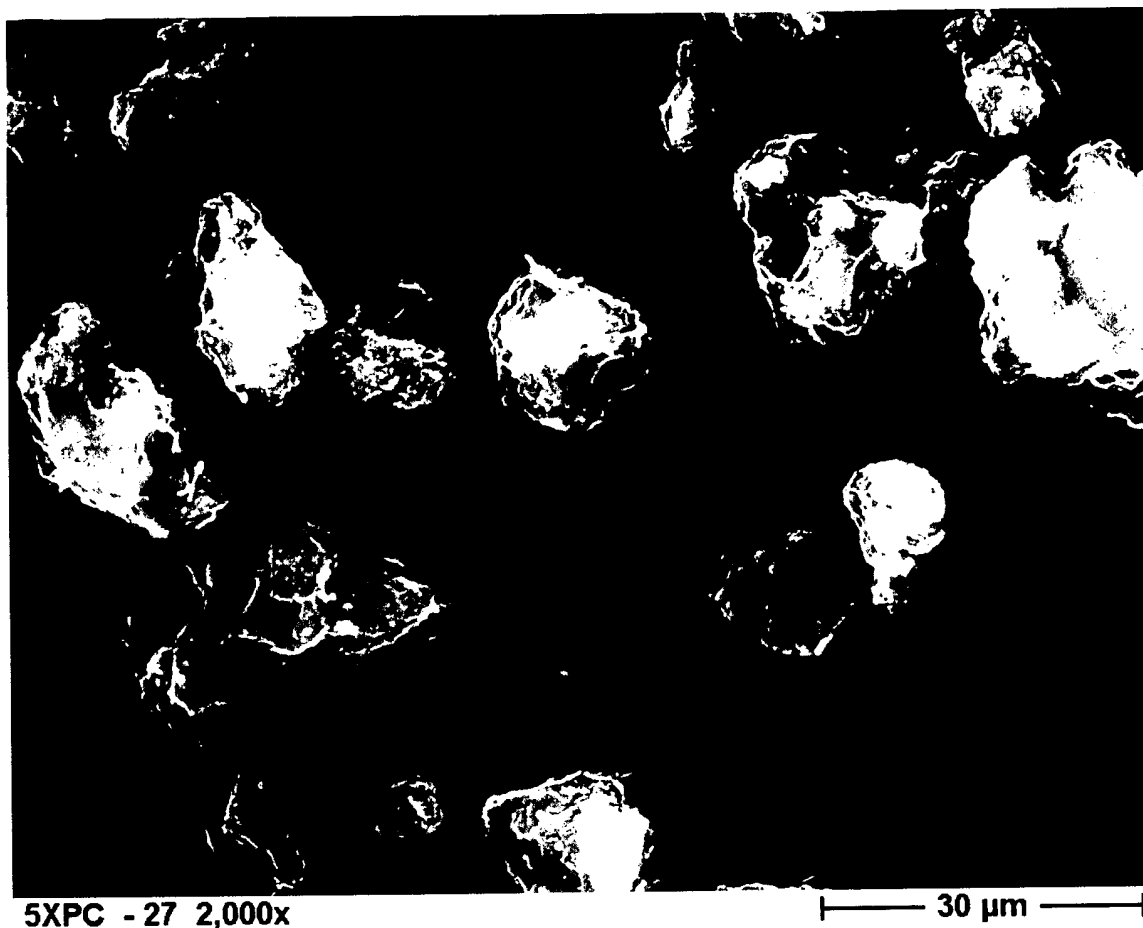
FIG. 5



5XPC - 27 10,000x

5 μ m

FIG. 6



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Serial No.: 09/649,413 Filing Date: 08/26/2000
Applicant: MATUR, Vijay K.
Title: MULTI-PHASE CALCIUM SILICATE HYDRATES,
METHODS FOR THEIR PREPARATION, et al
CALL: R. Reams Goodloe, Jr.
Phone: (253) 859-9128 / Reg. #32,466 / Cust#20793

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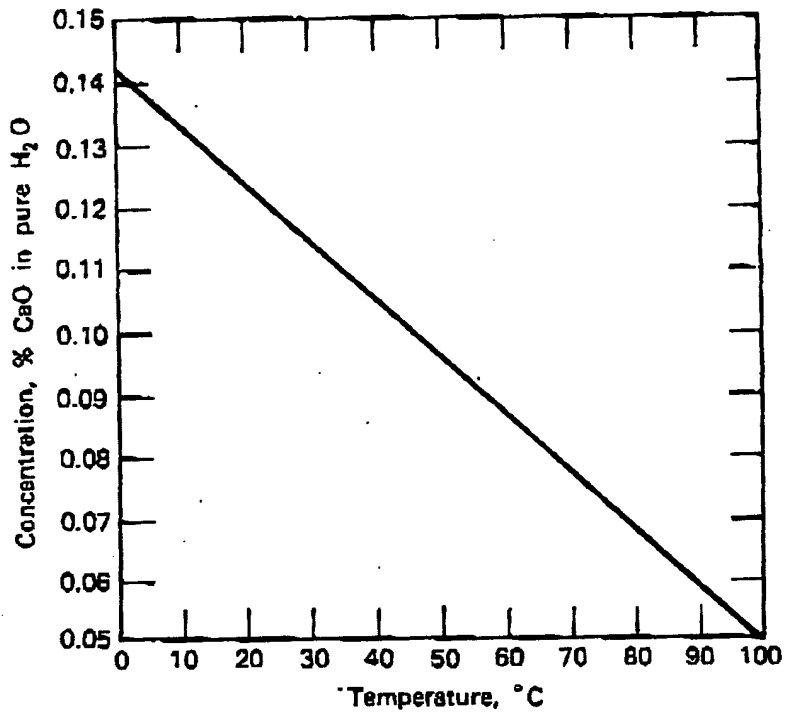


Figure 7: Solubility of lime in water

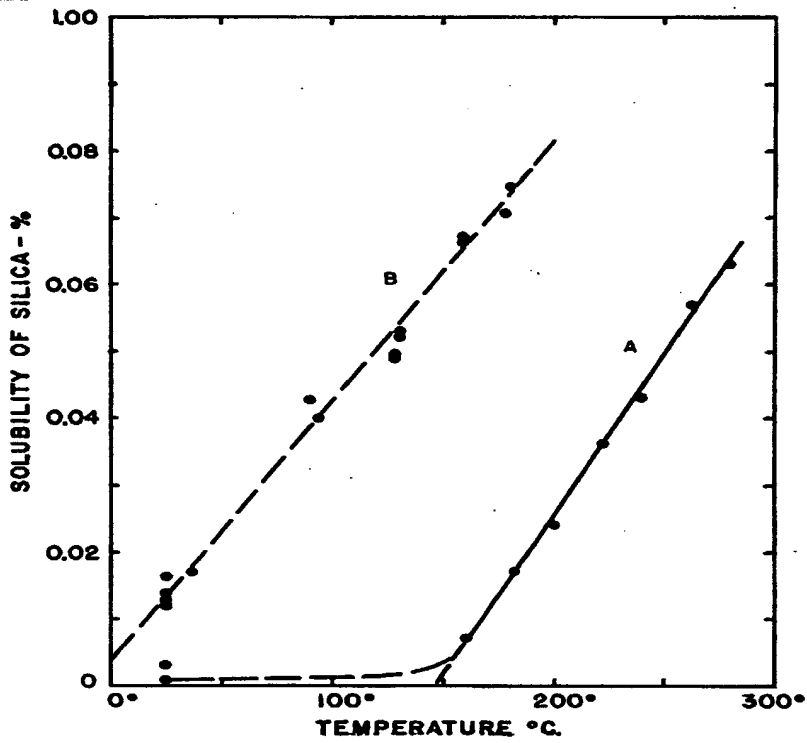


Figure 8: Solubility of silica in water

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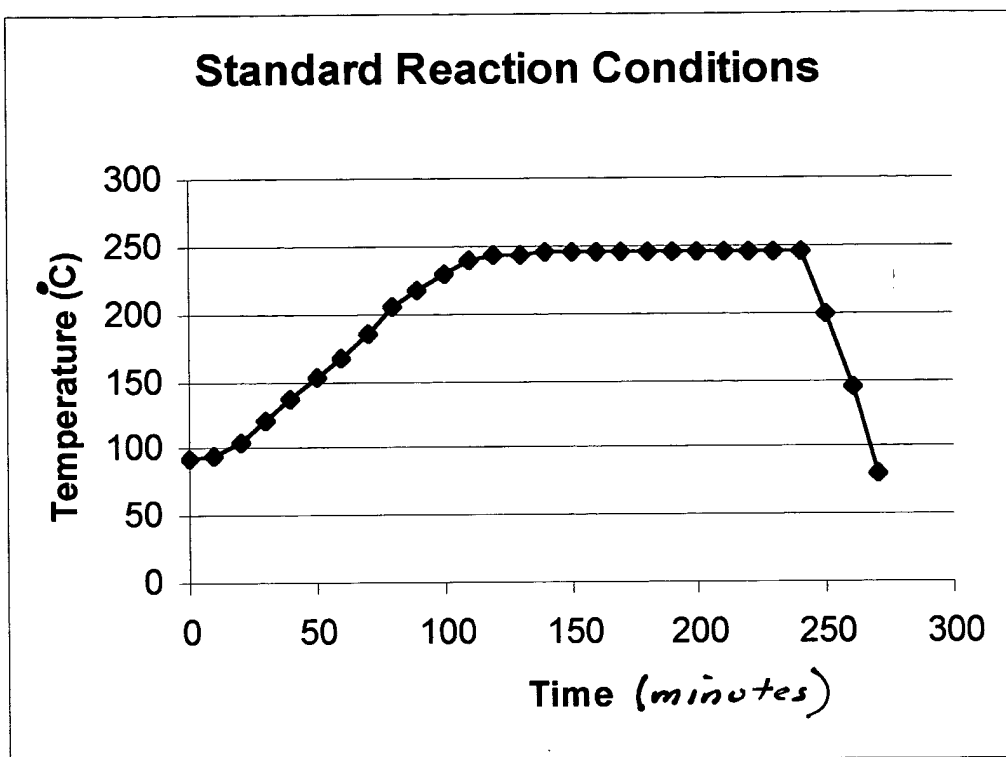


Figure 9: Heating/cooling cycle for a standard reaction

009900-ETH0960

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Calcium Silicate Hydrate: TiSil
Commercial Calcium Carbonate: PCC(HO)

Sheet Brightness

TiSil vs. PCC

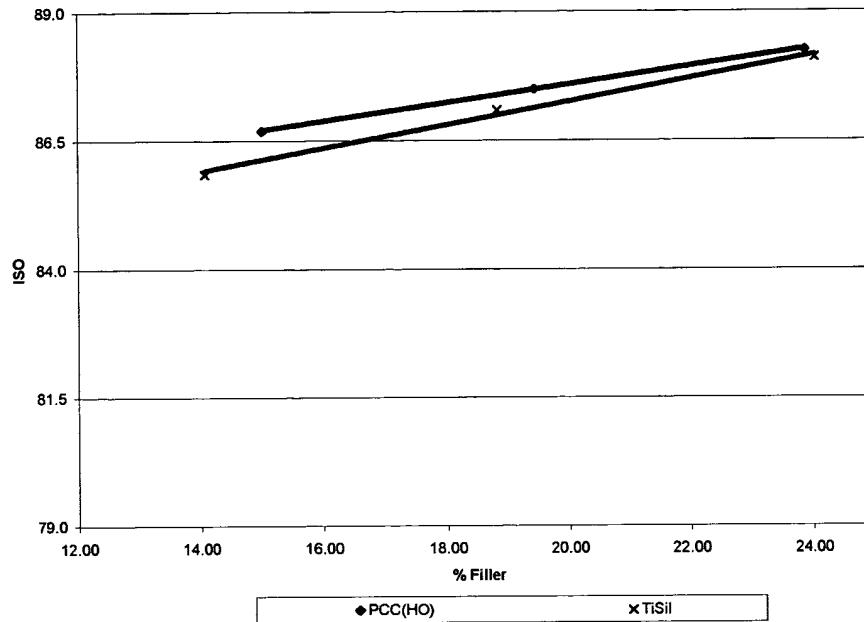


Fig 10: Sheet Brightness results for TiSil and PCC(HO)

Calcium Silicate Hydrate: TiSil
Commercial Calcium Carbonate: PCC(HO)

Sheet Opacity

TiSil vs. PCC

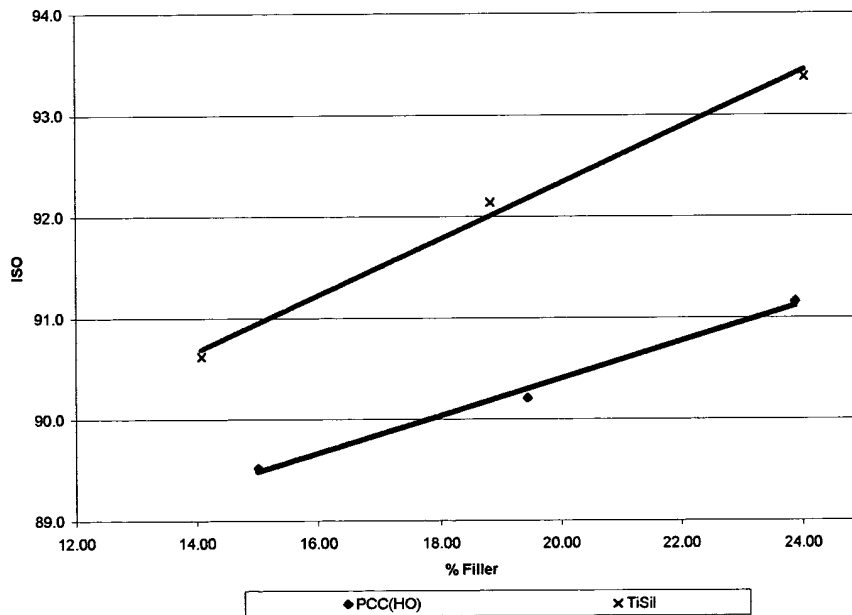


Fig 11: Sheet Opacity results for TiSil and PCC(HO)

00360-EPH0360

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Calcium Silicate Hydrate: TiSil
Commercial Calcium Carbonate: PCC(HO)

Sheet Scattering Coefficient

TiSil vs. PCC

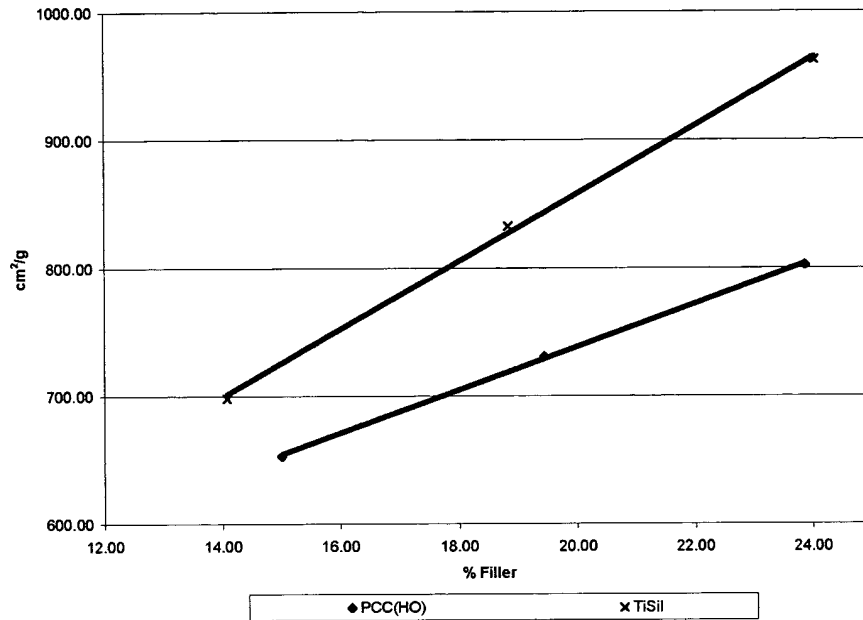


Fig 12: Sheet Scattering Coefficient results for TiSil and PCC(HO)

Calcium Silicate Hydrate: TiSil
Commercial Calcium Carbonate: PCC(HO)

Filler Scattering Coefficient

TiSil vs. PCC

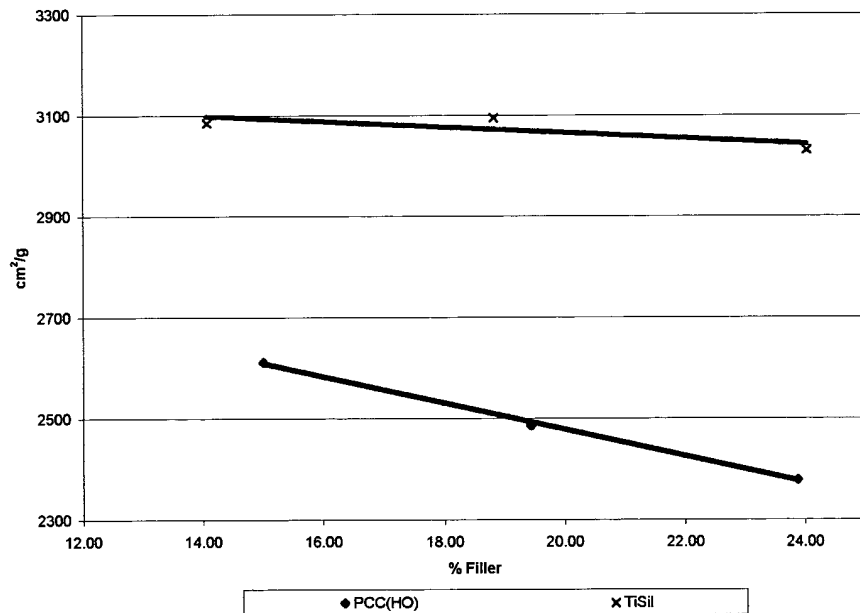


Fig 13: Filler Scattering Coefficient results for TiSil and PCC(HO)

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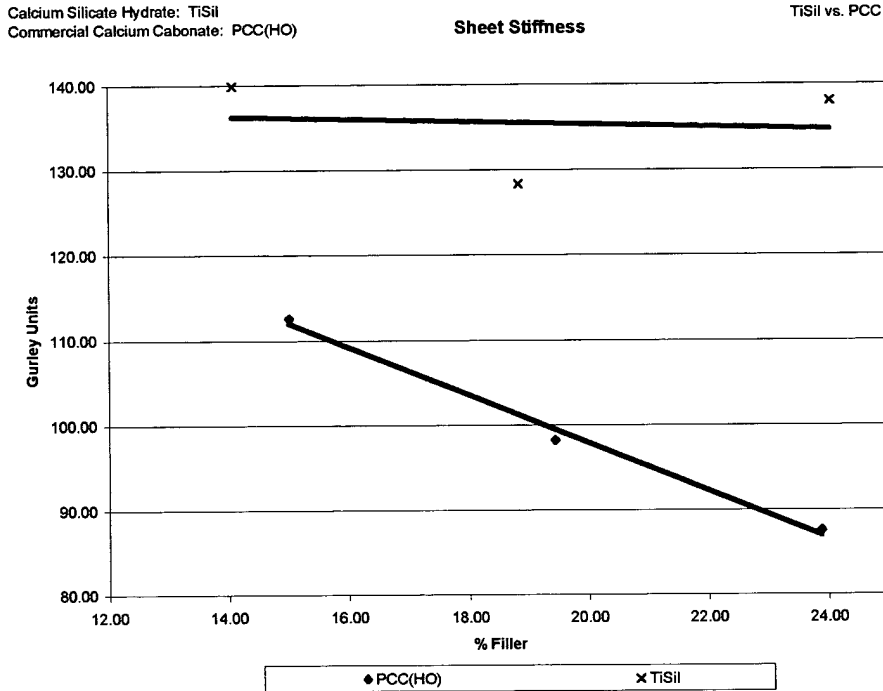


Fig 14: Sheet Stiffness results for TiSil and PCC(HO)

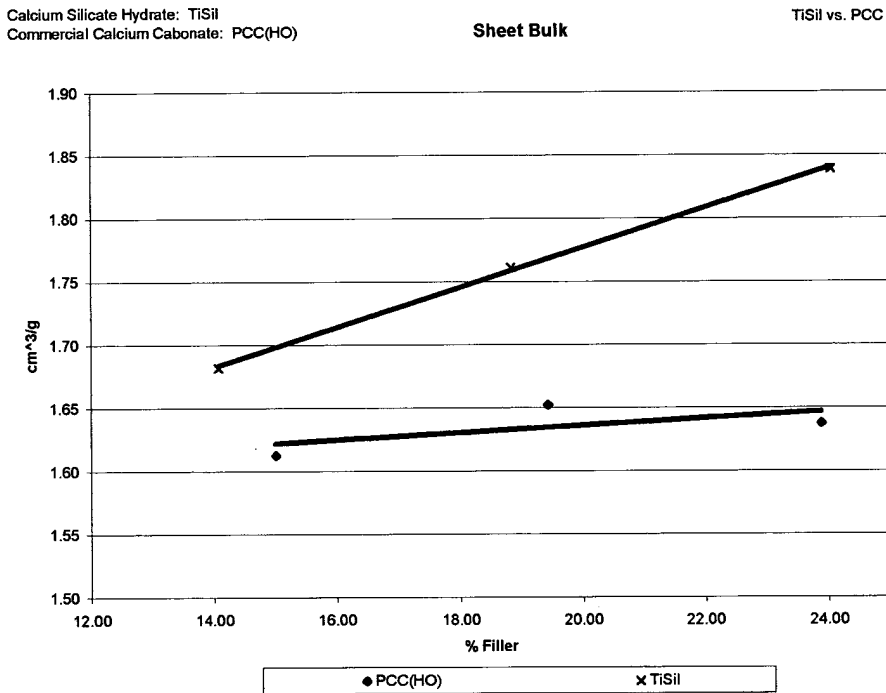


Fig 15: Sheet Bulk results for TiSil and PCC(HO)

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Calcium Silicate Hydrate: TiSiI
Commercial Calcium Carbonate: PCC(HO)

Sheet Porosity

TiSiI vs. PCC

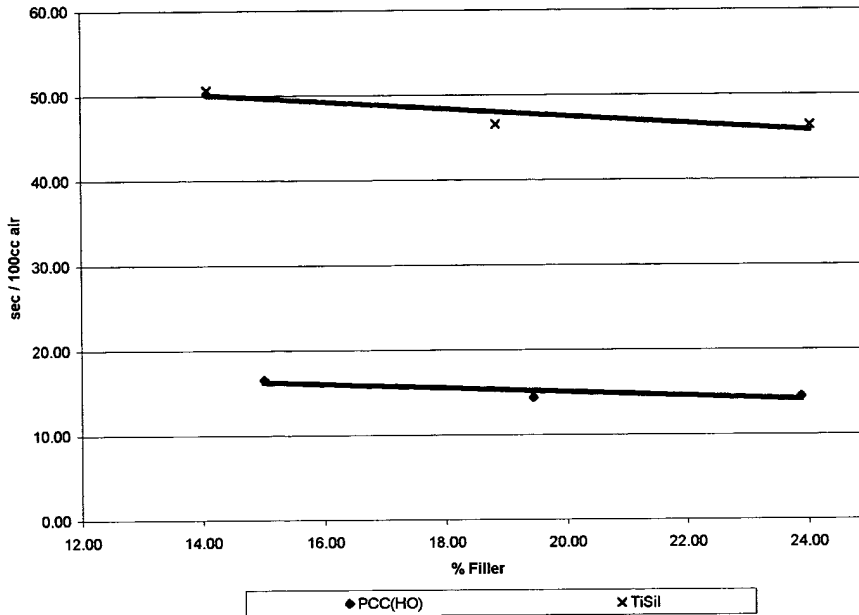


Fig 16: Sheet Porosity results for TiSiI and PCC(HO)

Calcium Silicate Hydrate: TiSiI
Commercial Calcium Carbonate: PCC(HO)

TiSiI vs. PCC

Sheet Tensile Index

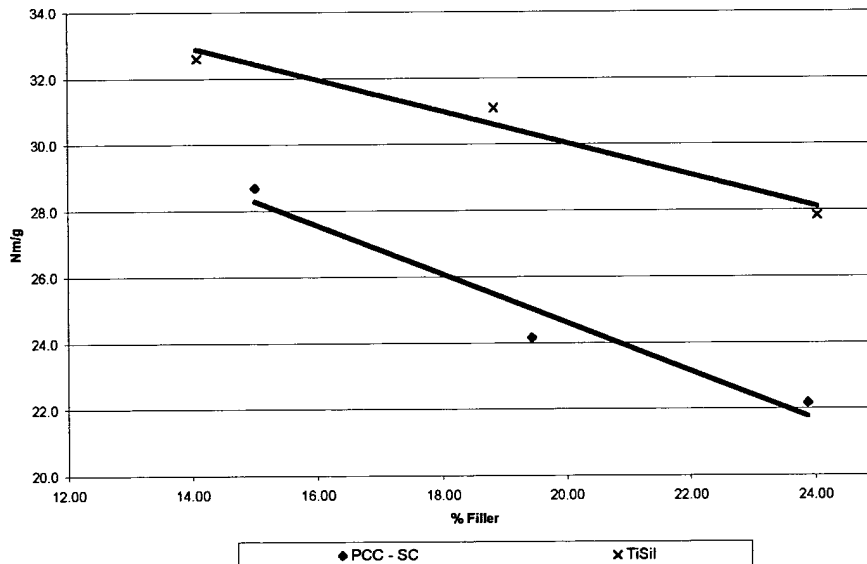


Fig 17: Sheet Tensile Index results for TiSiI and PCC(HO)

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Calcium Silicate Hydrate: TiSil
Commercial Calcium Carbonate w/TiO₂:
PCC(HO) + 60 lb/ton TiO₂

Sheet Brightness

TiSil vs. PCC w/TiO₂

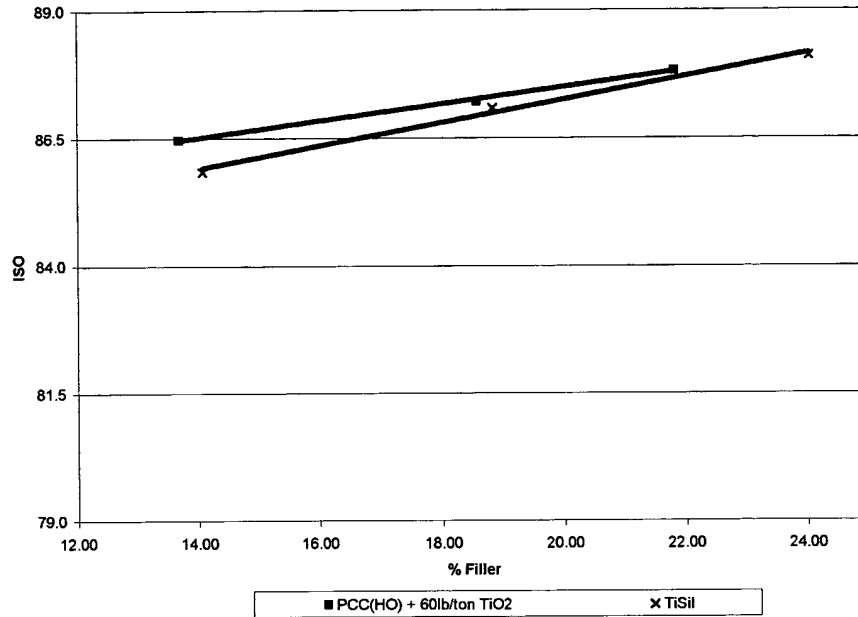


Fig 18: Sheet Brightness results for TiSil and PCC(HO) w/TiO₂

Calcium Silicate Hydrate: TiSil
Commercial Calcium Carbonate w/TiO₂:
PCC(HO) + 60 lb/ton TiO₂

Sheet Opacity

TiSil vs. PCC w/TiO₂

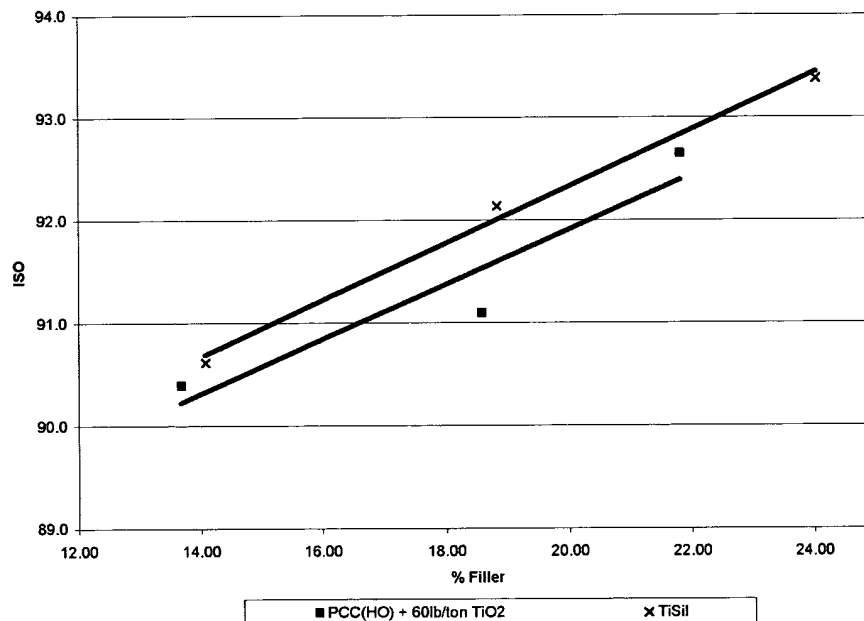


Fig 19: Sheet Opacity results for TiSil and PCC(HO) w/TiO₂

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Calcium Silicate Hydrate: TiSiI
Commercial Calcium Carbonate w/TiO₂:
PCC(HO) + 60 lb/ton TiO₂

Sheet Scattering Coefficient

TiSiI vs. PCC w/TiO₂

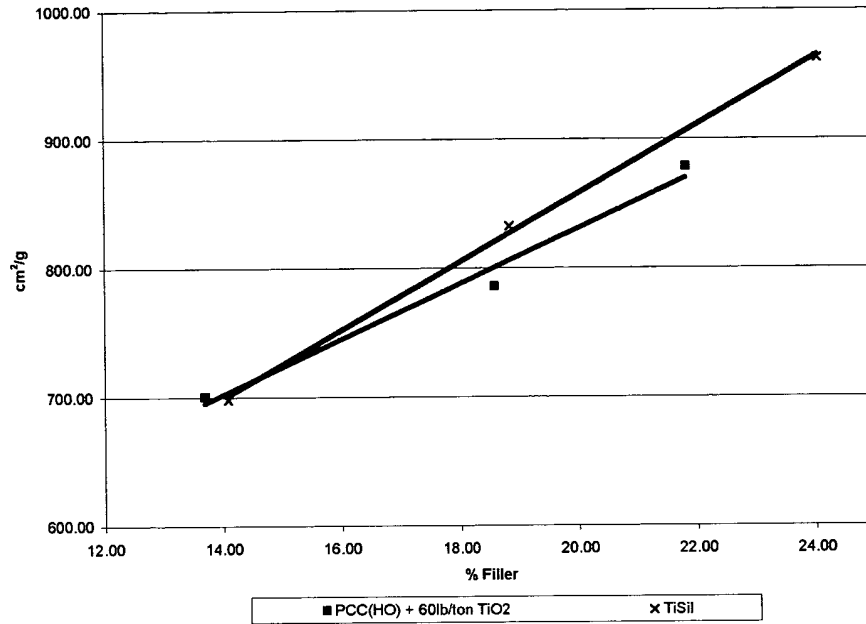


Fig 20: Sheet Scattering Coefficient results for TiSiI and PCC(HO) w/TiO₂

Calcium Silicate Hydrate: TiSiI
Commercial Calcium Carbonate w/TiO₂:
PCC(HO) + 60 lb/ton TiO₂

Filler Scattering Coefficient

TiSiI vs. PCC w/TiO₂

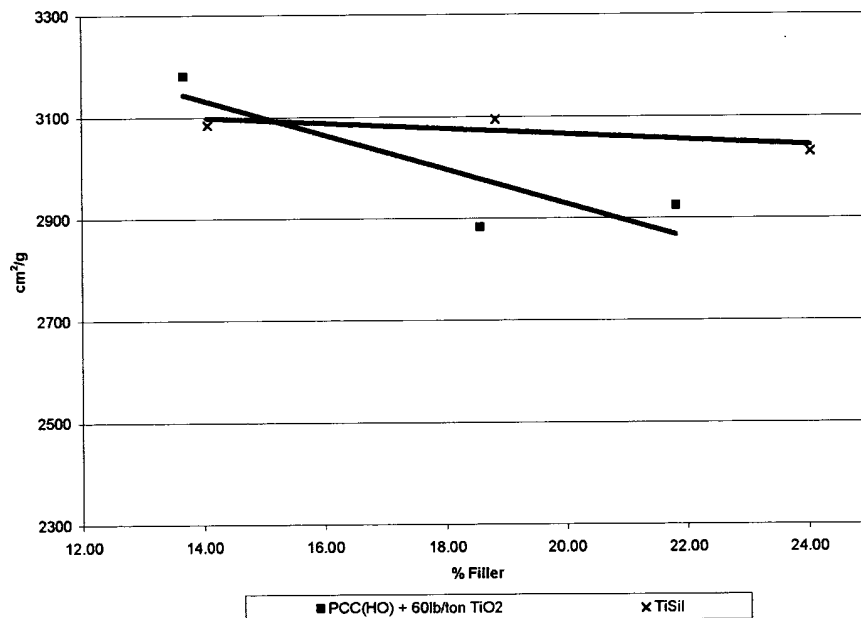


Fig 21: Filler Scattering Coefficient results for TiSiI and PCC(HO) w/TiO₂

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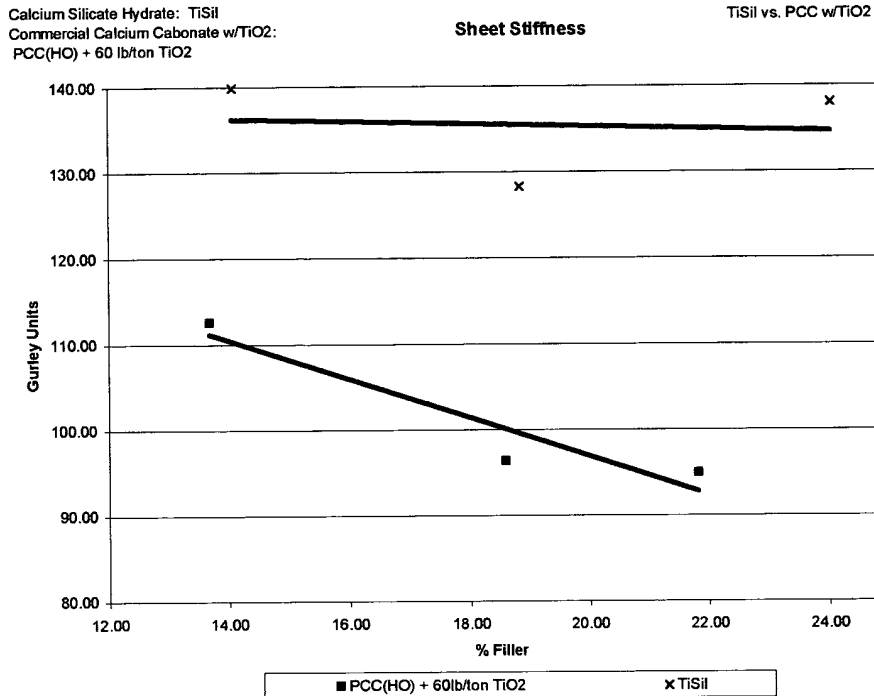


Fig 22: Sheet Stiffness results for TiSil and PCC(HO) w/TiO₂

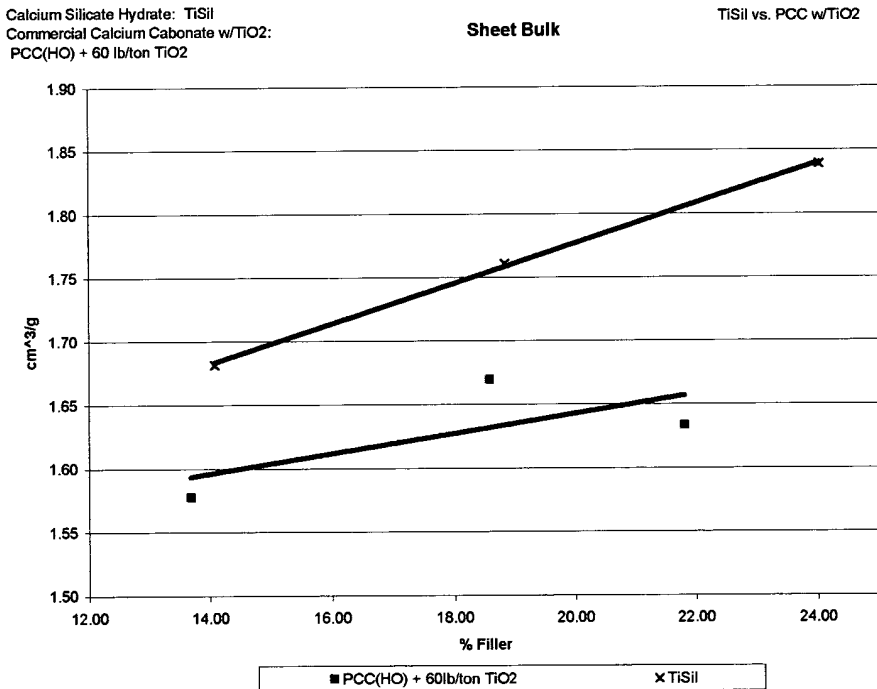


Fig 23: Sheet Bulk results for TiSil and PCC(HO) w/TiO₂

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Calcium Silicate Hydrate: TiSil
Commercial Calcium Carbonate w/TiO₂:
PCC(HO) + 60 lb/ton TiO₂

TiSil vs. PCC w/TiO₂

Sheet Porosity

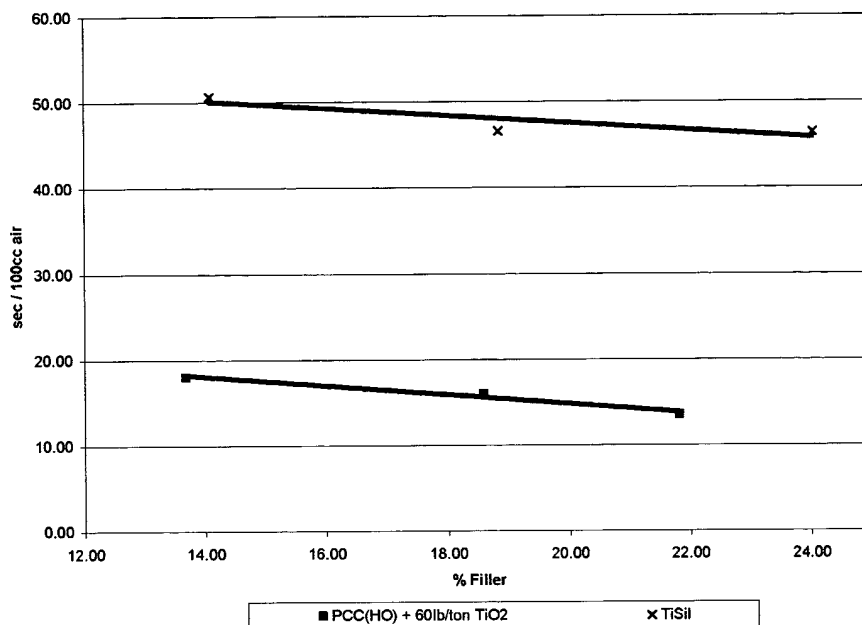


Fig 24: Sheet Porosity results for TiSil and PCC(HO) w/TiO₂

Calcium Silicate Hydrate: TiSil
Commercial Calcium Carbonate w/TiO₂:
PCC(HO) + 60 lb/ton TiO₂

TiSil vs. PCC w/TiO₂

Sheet Tensile Index

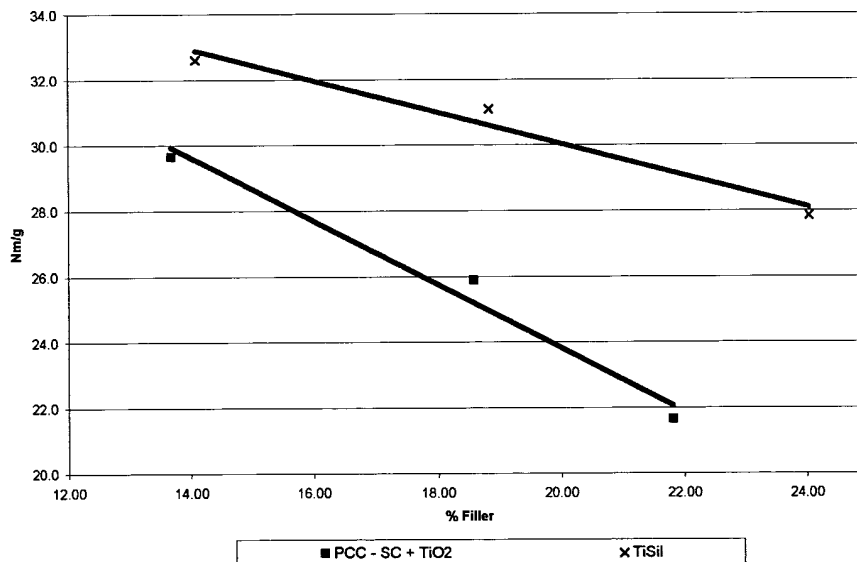


Fig 25: Sheet Tensile Index results for TiSil and PCC(HO) w/TiO₂

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Calcium Silicate Hydrate: TiSil
Commercial Calcium Silicate: Bulkite

Sheet Opacity

TiSil vs. Bulkite

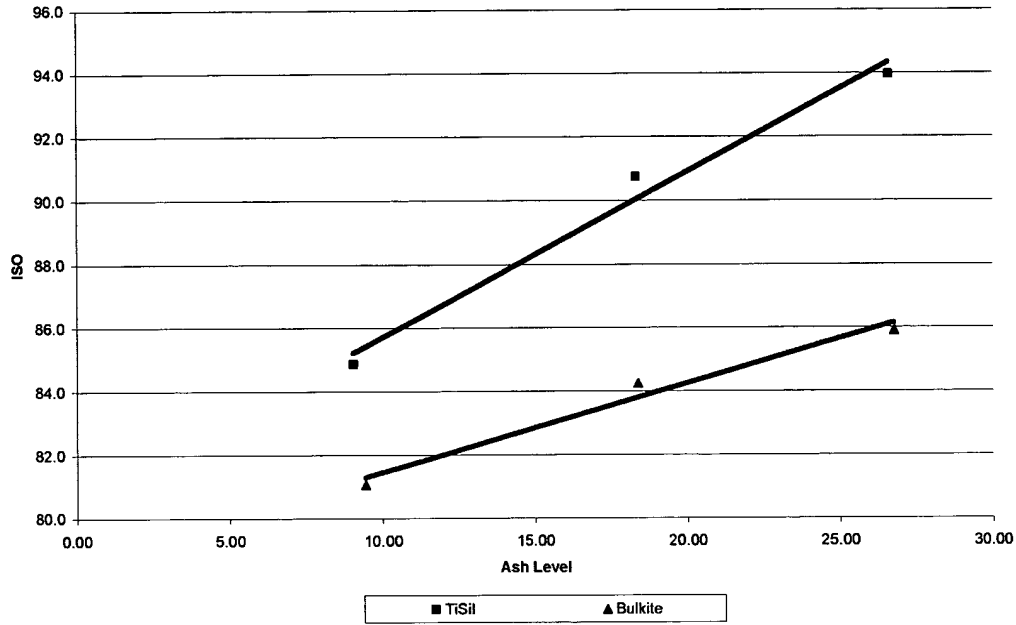


Fig 26: Sheet Opacity results for TiSil and Bulkite

Calcium Silicate Hydrate: TiSil
Commercial Calcium Silicate: Bulkite

Sheet Scattering Coefficient

TiSil vs. Bulkite

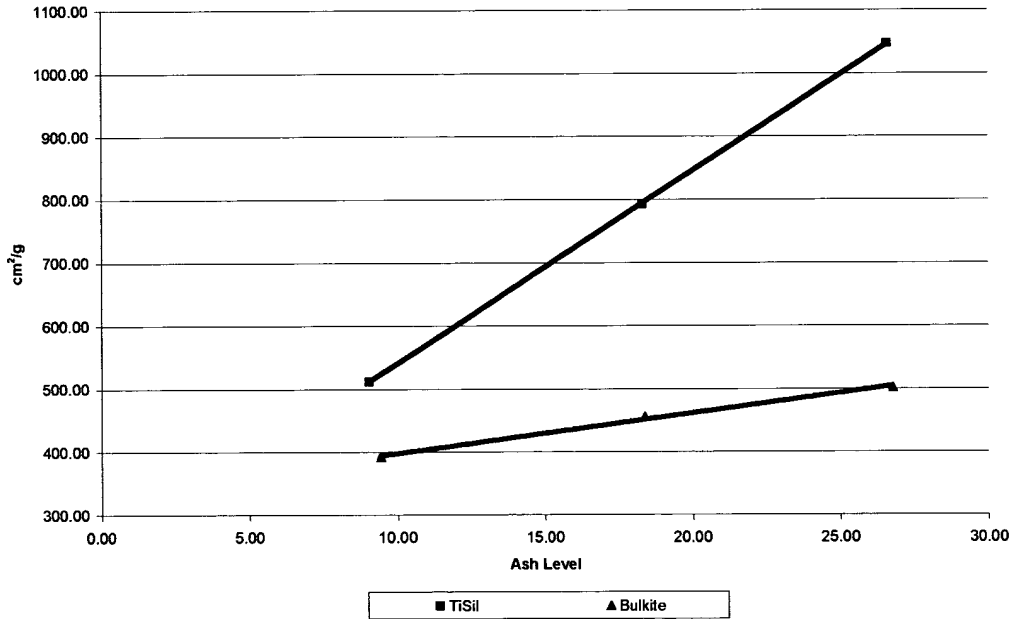


Fig 27: Sheet Scattering Coefficient results of TiSil and Bulkite

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Calcium Silicate Hydrate: TiSil
Commercial Calcium Silicate: Bulkite

Filler Scattering Coefficient

TiSil vs. Bulkite

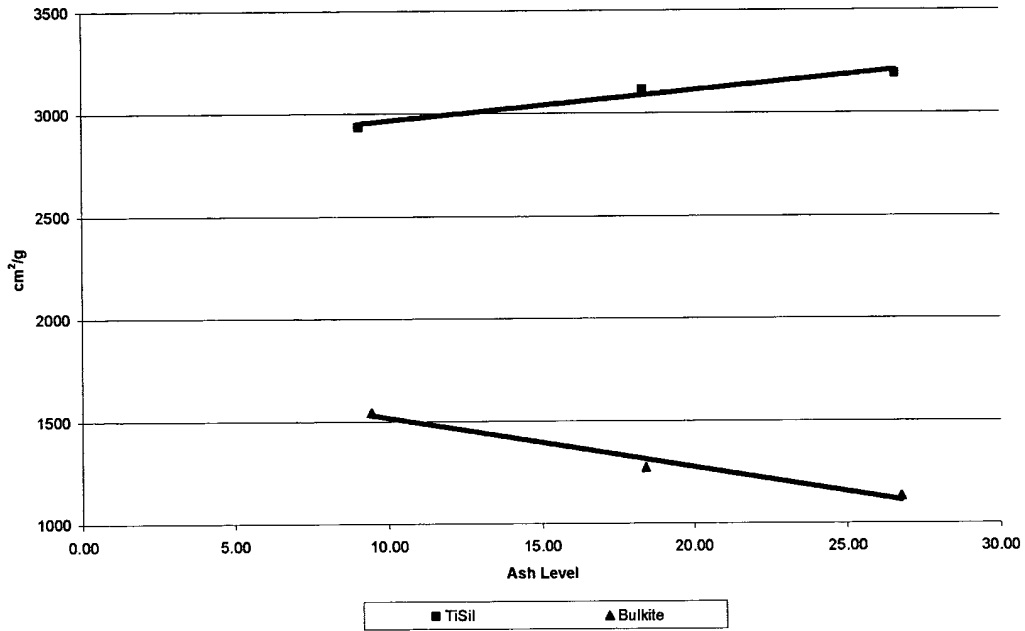


Fig 28: Filler Scattering Coefficient results for TiSil and Bulkite

Calcium Silicate Hydrate: TiSil
Commercial Calcium Silicate: Bulkite

Sheet Brightness

TiSil vs. Bulkite

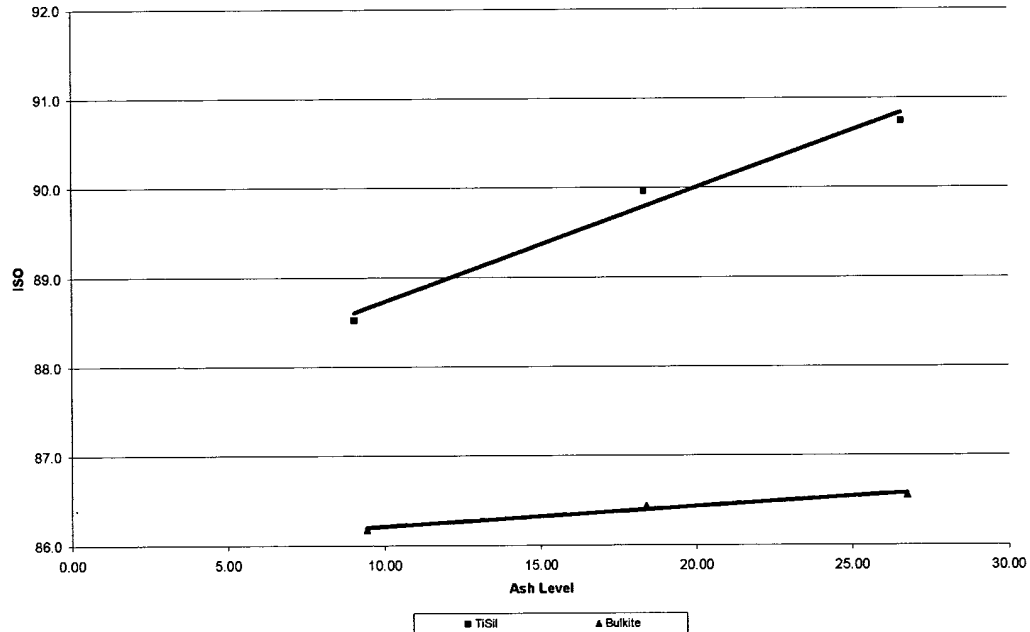


Fig 29: Sheet Brightness results for TiSil and Bulkite

Calcium Silicate Hydrate: TiSil
Commercial Calcium Silicate: Bulkite

Sheet Porosity

TiSil vs. Bulkite

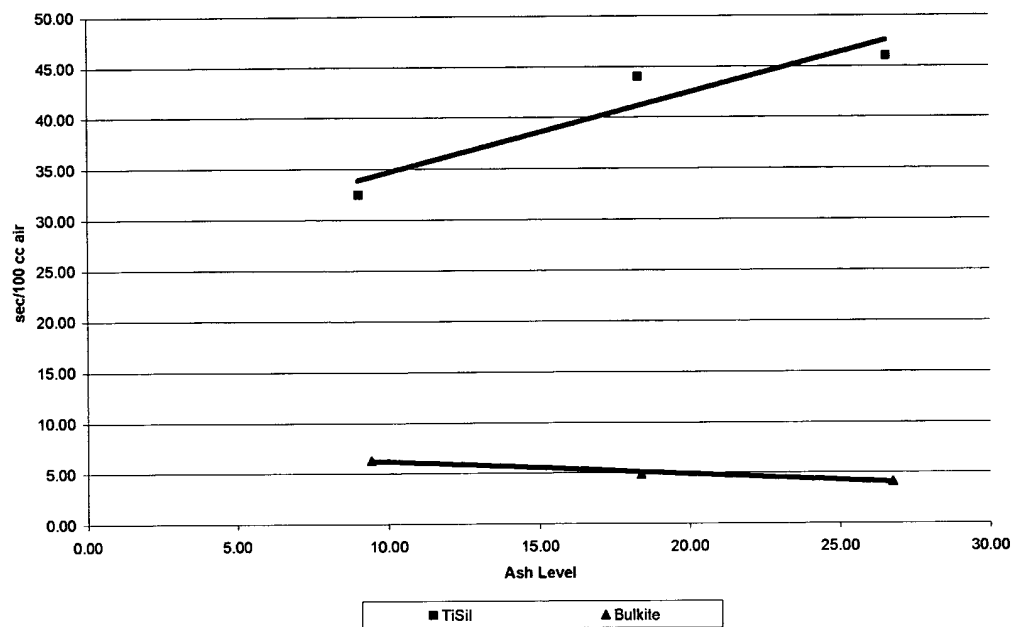


Fig 30: Sheet Porosity results for TiSil and Bulkite

Calcium Silicate Hydrate: TiSil
Commercial Silicate: HuberSil
Commercial Carbonate: Huber Carbonate

Normalized Sheet Opacity
(Interpolated to 6% Filler)

TiSil vs. HuberSil and Huber Carbonate

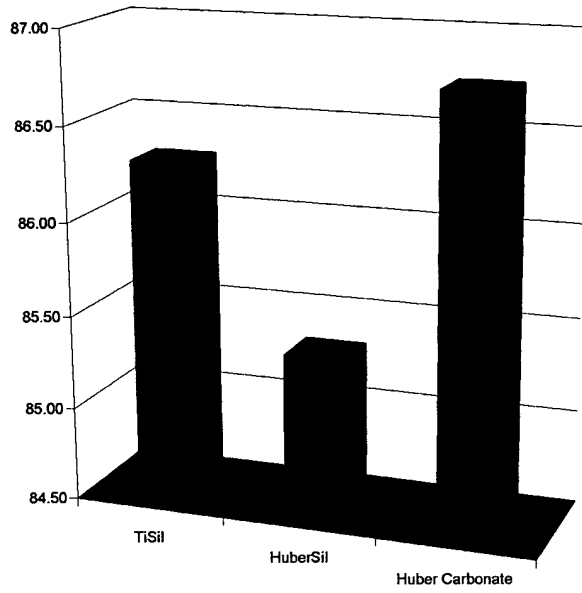


Fig 31: Normalized Sheet Opacity results for newsprint sheets containing various fillers, interpolated to 6% Ash.

Calcium Silicate Hydrate: TiSil
Commercial Silicate: HuberSil
Commercial Carbonate: Huber Carbonate

Sheet Ink Penetration
(Interpolated to 6% Filler)

TiSil vs. HuberSil and Huber Carbonate

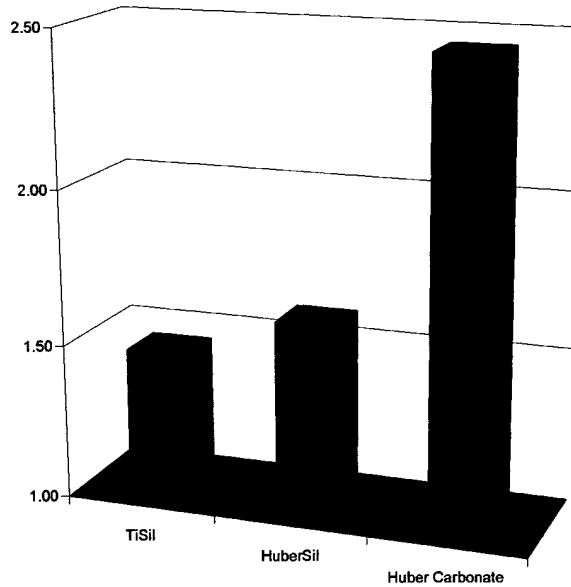


Fig 32: Sheet Ink Penetration results on newsprint sheets containing various fillers, interpolated to 6% Ash.

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Calcium Silicate Hydrate: TiSil
Commercial Silicate: HuberSil
Commercial Carbonate: Huber Carbonate

TiSil vs. HuberSil and Huber Carbonate

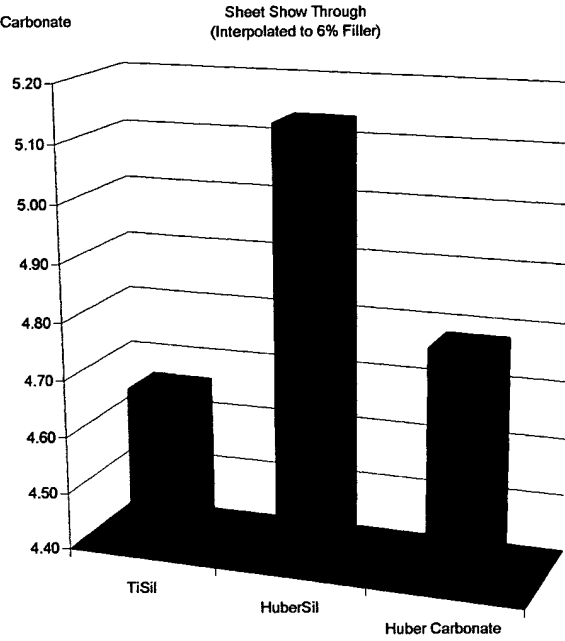


Fig 33: Sheet Show Through results on newsprint containing various fillers, interpolated to 6% Ash

Calcium Silicate Hydrate: TiSil
Commercial Silicate: HuberSil
Commercial Carbonate: Huber Carbonate

TiSil vs. HuberSil and Huber Carbonate

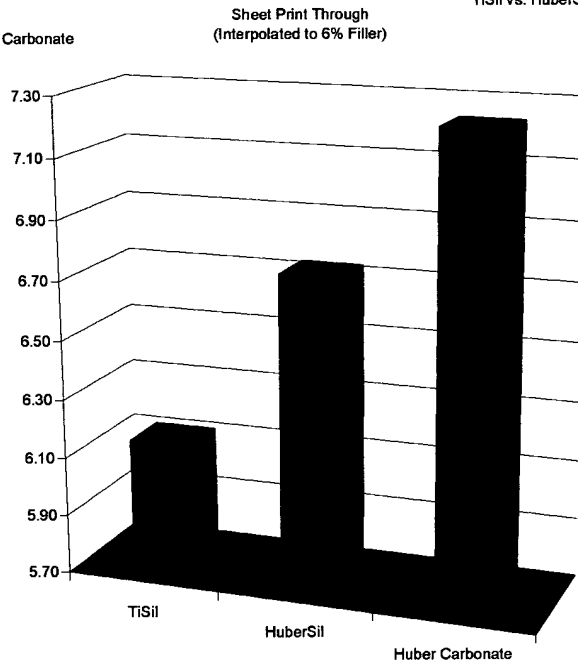


Fig. 34: Sheet Print Through results on newsprint sheets containing various fillers, interpolated to 6% Ash.

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Calcium Silicate Hydrate: TiSil
 Commercial Silicate: HuberSil
 Commercial Carbonate: Huber Carbonate

Gurley Sheet Porosity
 (Interpolated to 6% Filler)

TiSil vs. HuberSil and Huber Carbonate

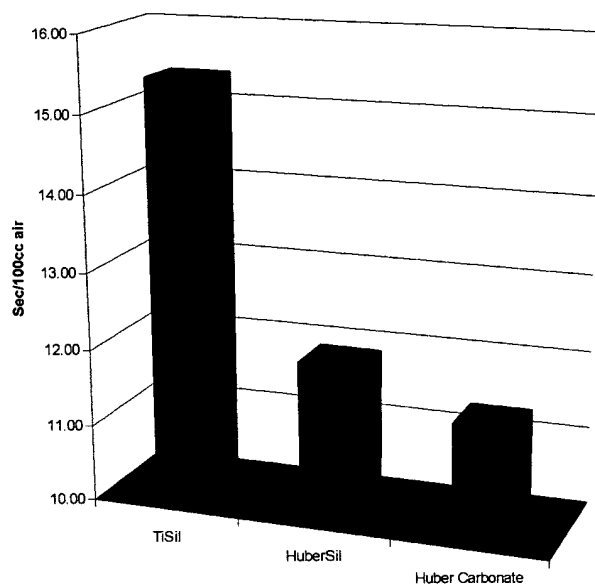


Fig 35: Gurley Sheet Porosity results for newsprint sheets containing various fillers, interpolated to 6% Ash

Calcium Silicate Hydrate: TiSil
 Commercial Silicate: HuberSil
 Commercial Carbonate: Huber Carbonate

Sheet Tensile Index
 (Interpolated to 6% Filler)

TiSil vs. HuberSil and Huber Carbonate

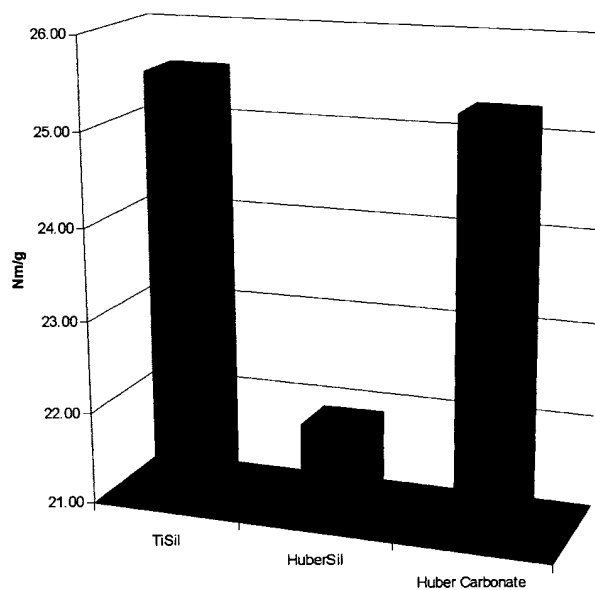


Fig 36: Sheet Tensile Index results for newsprint sheets containing various fillers, interpolated to 6% Ash

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Calcium Silicate Hydrate: TiSil
Commercial Silicate: HuberSil
Commercial Carbonate: Huber Carbonate

Gurley Sheet Stiffness
(Interpolated to 6% Filler)

TiSil vs. HuberSil and Huber Carbonate

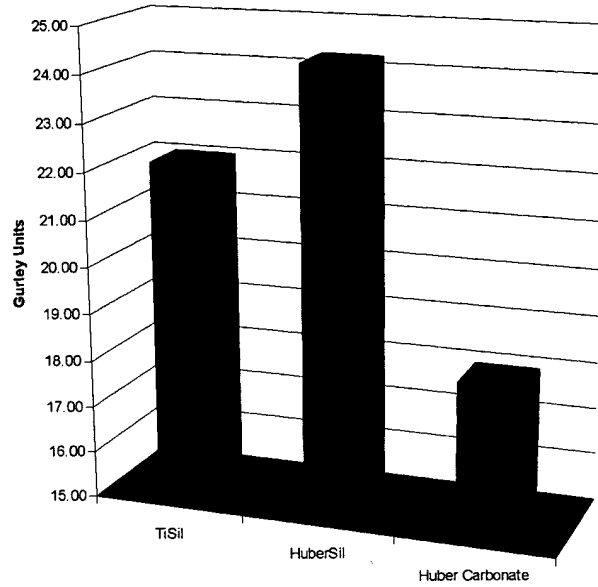


Fig 37: Gurley Sheet Stiffness results for newsprint sheets containing various fillers, interpolated to 6% Ash

Calcium Silicate Hydrate: TiSil
Commercial Silicate: HuberSil
Commercial Carbonate: Huber Carbonate

Sheet Static Coefficient of Friction
(Interpolated to 6% Filler)

TiSil vs. HuberSil and Huber Carbonate

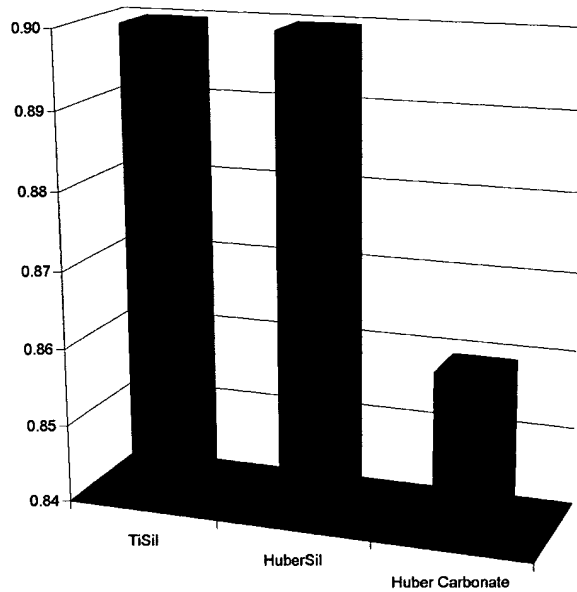


Fig 38: Sheet Static Coefficient of Friction results for newsprint sheets containing various fillers, interpolated to 6% Ash

Calcium Silicate Hydrate: TiSil
Commercial Silicate: HuberSil
Commercial Carbonate: Huber Carbonate

Sheffield Sheet Smoothness
(Interpolated to 6% Filler)

TiSil vs. HuberSil and Huber Carbonate

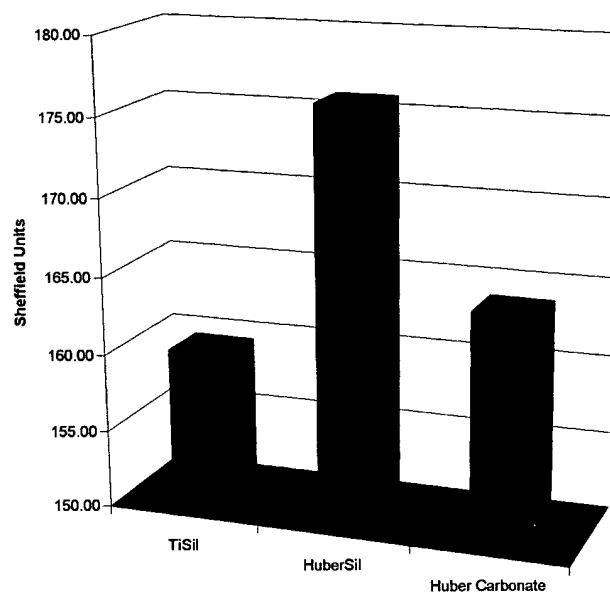


Fig 39: Sheffield Sheet Smoothness results for newsprint sheets containing various fillers, interpolated to 6% Ash.